

**Notice of Allowability**

Application No.

09/805,755

Examiner

Tom V. Sheng

Applicant(s)

HUANG ET AL

Art Unit

2677

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to appeal brief filed on 7/11/05.
2. ☒ The allowed claim(s) is/are 1-7 and 9-15.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Attorney Paul E. Steiner on 10/14/05.

In the claims:

Claim 7, last line, after "the second subpixel", append ", wherein the first pulse and the second pulse being of about equal width".

Cancel claim 8.

Claim 9, line 1, replace "claim 8" with "claim 7".

Claim 10, line 1, replace "claim 8" with "claim 7".

### ***Allowable Subject Matter***

2. Claims 1-7 and 9-15 are allowed.

3. The following is an examiner's statement of reasons for allowance:

The claimed invention is directed to a system for intensity control of a pixel, incorporating both spatial gradation and temporal gradation. In particular, each pixel includes a first subpixel, a second subpixel, and the first subpixel and the second subpixel having a light output ratio of about 1:1. A driver that applies pulse-width modulated electrical waveform to the first and second subpixels. The modulated

Art Unit: 2677

waveform having a first pulse and a second pulse of about equal width, the first pulse being applied to the first subpixel for a first grayscale tone and the second pulse being to the first subpixel and the second subpixel for a second grayscale tone.

Independent claim 1 identifies the uniquely distinct features, "a pixel having  $2^s$  subpixels, two of the subpixels with the lowest light output having a light output ratio of about 1:1; and a driver to apply a pulse-width modulated waveform to the subpixels, the modulated waveform having N-s pulse of different pulse widths combined to provide  $2^N$  gray-scale tones, where N is a positive integer and s is a positive integer having a value less than N."

Independent claim 7 identifies the uniquely distinct features, "the first subpixel and the second subpixel having a light output ratio of about 1:1" and "the first pulse and the second pulse being of about equal width".

Independent claim 12 identifies the uniquely distinct features, "a first width to a first subpixel", "the first width to the first subpixel and a second subpixel", and "wherein the first subpixel and the second subpixel have a light output ratio of about 1:1".

The closest art, Jones et al. (US 6,417,864 B1), teaches gradation control by means of both temporal dither and spatial dither. In particular, Jones teaches using two subpixels in a pixel having a ratio of 1:2 and using 3 pulse widths having ratio of 1:4:16. This is different from applicants' specific use of 1:1 in subpixel light output ratio and 1:1 of pulse width ratio of the first two pulse widths. Moreover, Jones does not teach the use of N-s different pulse widths. Thus, Jones fails to anticipate or render obvious the above claimed limitations.

Art Unit: 2677

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom V. Sheng whose telephone number is (571) 272-7684. The examiner can normally be reached on 9:00am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tom Sheng  
October 14, 2005

AMR A. AWAD  
PRIMARY EXAMINER  
*Amr Awad*